

## Quadratics: Factoring $ax^2+bx+c$

To factor a quadratic equation in the form of  $ax^2+bx+c$  use guess and check.

Example: Factor  $8x^2 - 2x - 6$

Step 1: Can each term in the Trinomials be divided by the same number? If yes, then factor out that number.

$$2(4x^2 - x - 3)$$

Step 2: Next make double parentheses ( )( ) for what is still inside the single ( )

Step 3: Find factors for  $ax^2$ . In this case  $4x^2$

$$\begin{array}{cc} 2x \cdot 2x & (4x \quad )(x \quad ) \\ 4x \cdot x & \end{array}$$

Step 4: Now find factors for the c-value. In this case for -3.  $1 \cdot -3$  Or  $-1 \cdot 3$

Step 5: Lastly, use guess and check to see if you get the bx value. In this case  $-x$

Guess 1

$$(4x+1)(x-3)$$

$1x$   
 $-12x$

NO

$-11x$

Guess 2

$$(4x+3)(x-1)$$

$3x$   
 $-4x$

$-x$

$$8x^2 - 2x - 6 = 2(4x+3)(x-1)$$

↑  
make  
sure to  
bring the  
2 down from  
step 1!

